PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-124583
(43)Date of publication of application : 11.05.2001

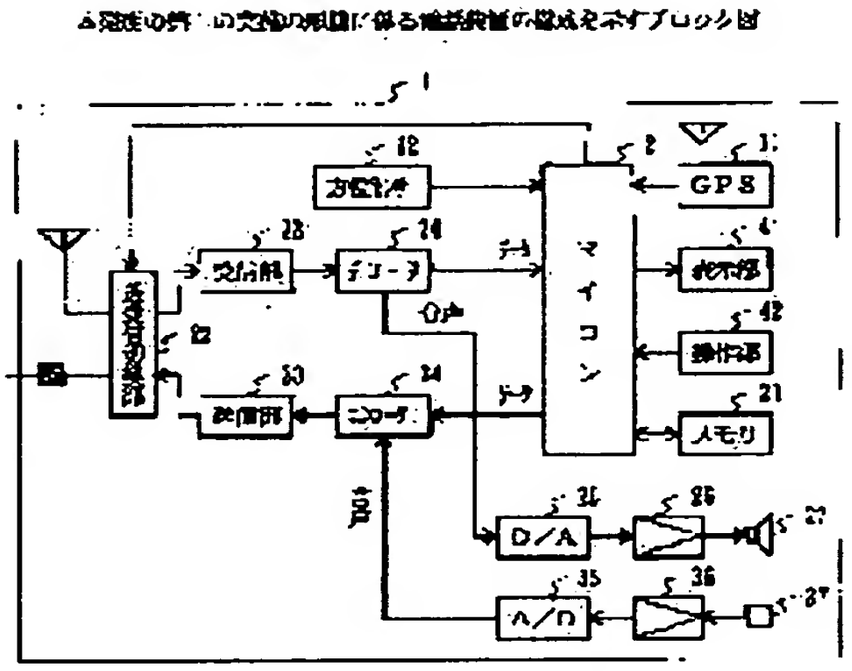
(51)Int.Cl. G01C 21/00
G01S 5/14
G08G 1/005
H04Q 7/34
H04M 1/00
H04M 1/725

(21)Application number : 11-307379
(22)Date of filing : 28.10.1999

(71)Applicant : FUJITSU TEN LTD
(72)Inventor : NAKAISHI SHINICHI
MAEHATA MINORU

(54) TELEPHONE DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a telephone device for accurately and easily transmitting position information to a destination and accurately and easily receiving the position information from the destination.
SOLUTION: This telephone device is provided with an input means for inputting position information for indicating the latitude and longitude of an arbitrary point, an instruction means for storing the inputted position information at a storage means according to an external instruction, and a transmission means for transmitting position information stored by the storage means according to the instruction means, thus repeatedly transmitting own position information at each traveling over prescribed distance and accurately reporting the traveling own position to the destination in real time.



LEGAL STATUS

[Date of request for examination] 27.10.2006

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

CLAIMS

[Claim(s)]
[Claim 1] Telephone equipment characterized by having an input means to input the positional information which shows the lat/long of the point of arbitration, a directions means to make a storage means memorize the inputted positional information with the directions from the outside, and a display means to display the positional information memorized by the storage means with said directions means.
[Claim 2] Telephone equipment characterized by having an input means to input the positional information which shows the lat/long of the point of arbitration, a directions means to make a storage means memorize the inputted positional information with the directions from the outside, and a transmitting means to transmit the positional information memorized by the storage means with said directions means.
[Claim 3] Telephone equipment according to claim 1 or 2 characterized by having a receiving means to receive the electric wave from a satellite, and generating said positional information based on the electric wave received with said receiving means.
[Claim 4] The telephone equipment carry out having had a retransmission-of-message means transmit the currency information again detected by the last transmission place with said location detection means when it detects having carried out predetermined distance migration from the current position with a location detection means detect the current position, a transmitting means transmit the currency information detected by said location detection means, a migration-length detection means detect having carried out predetermined distance migration from said current position, and said migration-length detection means as the description.
[Claim 5] Telephone equipment according to claim 4 characterized by having a message-sending means to transmit a predetermined message when it detects that the count of transmission of the currency information detected by count detection means of transmission to detect the count of transmission of the currency information by said retransmission-of-message means, and said count detection means of transmission was performed the number of predetermined times.
[Claim 6] Telephone equipment characterized by having a physical relationship information means to report the physical relationship of a receiving means to receive the positional information of this mobile transmitted from the mobile, the positional information of said mobile, and the positional information of the point of the inputted arbitration.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to telephone equipment equipped with the function in which positional information can be memorized, transmitted or received.
[0002]
[Description of the Prior Art] When the positional information of a house, a queuing location, etc. was connected to a phase hand using telephone equipment, the nearby station, the big building, the crossing, etc. were made the mark, and it was being informed orally that it was called "a point about 500m northeast of OO elementary school." Moreover, when the phase hand had telephone equipment with a facsimile function, the map near a communication point was drawn and facsimile transmission was carried out.
[0003]
[Problem(s) to be Solved by the Invention] In communication oral [by conventional telephone equipment], there was a problem that could not explain a location correctly, the other party heard it wrong, or a transfer mistake produced it in positional information by the storage mistake. Moreover, in transmission of the map by facsimile, although a transfer mistake is lost, it needs to draw a detailed map and requires time and effort. Moreover, there is no facsimile transmission / reception function in the cell phone unit often used by queuing etc., and there was a problem that map information could not be transmitted.
[0004] This invention aims at offering the telephone equipment which can transmit positional information to a phase hand correctly and easily, and can acquire the positional information from a phase hand correctly and easily.
[0005]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention is characterized by to have an input means input the positional information which shows the lat/long of the point of arbitration, a directions means make a storage means memorize the inputted positional information with the directions from the outside, and a display means display the positional information memorized by the storage means with said directions means.
[0006] Moreover, it is characterized by having an input means to input the positional information which shows the lat/long of the point of arbitration, a directions means to make a storage means memorize the inputted positional information with the directions from the outside, and a transmitting means to transmit the positional information memorized by the storage means with said directions means.
[0007] Moreover, it has a receiving means to receive the electric wave from a satellite, and is characterized by generating said positional information based on the electric wave received with said receiving means.
[0008] Moreover, when it detects having carried out predetermined distance migration from the current position with a location detection means detect the current position, a transmitting means transmit the currency information detected by said location detection means, a migration-length detection means detect having carried out predetermined distance migration from said current position, and said migration-length detection means, it carries out having had a retransmission-of-message means transmit the currency information again detected by the last transmission place with said location detection means as the description.
[0009] Moreover, when it detects that the count of transmission of the currency information detected by count detection means of transmission to detect the count of transmission of the currency information by said retransmission-of-message means, and said count detection means of transmission was performed the number of predetermined times, it is characterized by having a message-sending means to transmit a predetermined message.
[0010] Moreover, it is characterized by having a physical relationship information means to report the physical relationship of a receiving means to receive the positional information of this mobile transmitted from the mobile, the positional information of said mobile, and the positional information of the point of the inputted arbitration.

[0011]
[Embodiment of the Invention] Drawing 1 is the block diagram showing the configuration of the telephone equipment concerning the gestalt of operation of the 1st of this invention. Hereafter, it explains according to drawing.
[0012] 11 is a GPS receiver which receives the electric wave from a satellite (GPS Satellite), and computes positional information from the signal. 12 is bearing sensors, such as a magnet for adjusting the display screen of a display 41 to predetermined bearing. 2 is a microcomputer (a microcomputer is called hereafter) which performs processing which computes the distance and bearing between both from the processing which computes the positional information of lat/long from the electric wave received by GPS receiver 11, the reception of positional information, transmitting processing, a predetermined location, and a phase hand's location. 21 is the memory which consisted of RAM of the non-volatile which memorizes the predetermined positional information in which the manual input was carried out by the control unit 42, the currency information detected by the GPS receiver, the positional information of the phase hand who received by the receive section 23, etc. 41 is the display which consisted of liquid crystal display panels which display current time information and a phase hand's telephone number information while displaying the positional information memorized in memory 21 based on the signal from a microcomputer 2, the positional information of the phase hand who received, etc. 42 is a control unit which consists of the numerical keypad for performing various setup, a positional information input, a line connection, storage and transmission / reception directions, etc., a function key, an actuation switch, etc.
[0013] 22 is the transceiver change-over section which switches the send action which transmits voice and positional information by the transmitting section 33, and the reception actuation which receives voice and positional information by the receive section 23. 23 is a receive section which receives the voice and positional information transmitted by the phase hand by the cable or wireless. 24 is the decoder which separates a sound signal from the coded input signal, and a sound signal is sent to D/A converter 25, and it sends data, such as positional information, to a microcomputer 2. 25 is a D/A converter which changes the received digitized voice signal into an analog signal. 26 is amplifier which amplifies the received sound signal and is outputted to a loudspeaker (earphone) 27. 27 is a loudspeaker (earphone) which changes the amplified sound signal into voice. 37 is a microphone (telephone transmitter) which changes a speaker's voice into an electrical signal. 36 is amplifier which amplifies the input signal from a microphone 37. 35 is an A/D converter which changes an analog signal into a digital signal, in order to code a sound signal and to transmit. 34 is an encoder which codes voice and positional information and is transmitted. 33 is the transmitting section which transmits voice and positional information to the other party by the cable or wireless. In addition, when telephone equipment 1 is a cell phone unit, in the case of deferment mold telephone equipment, a cable connects with the exchange of a dial office through a radio relay station from a transceiver antenna.
[0014] Drawing 2 is drawing showing the external view and the example of a positional information display of the telephone equipment concerning the gestalt of operation of the 1st of this invention, and (a) is drawing in which the external view of a cell phone unit and (b) show the external view of deferment mold telephone equipment, and (c) shows the example of positional information storage. Drawing 3 is the flow chart of the positional information storage processing which the microcomputer 2 of the telephone equipment concerning the gestalt of operation of the 1st of this invention performs. Hereafter, it explains according to drawing. In addition, the gestalt of this operation makes a location name and positional information correspond to telephone equipment, is memorized, and is read if needed (it displays on a display). Moreover, this processing is started from the time of storage of positional information being directed.
[0015] At step S1, it judges whether it is a location storage mode, if it is a location storage mode, it will move to step S2, and if it is not a location storage mode, processing will be finished. That is, it judges by whether the user directed the location storage operation by storage keys (function key corresponding to storage of a control unit 42 etc.).
[0016] At step S2, a location name is inputted and it moves to step S3. That is, in telephone

equipment 1, location names, such as two or more locations, for example, a house, office, friend's house, and the current position, and corresponding storage of positional information (LAT, LONG, etc.) are possible, and in order to make a location name and positional information correspond, "location names", such as a house, is inputted first. An input is performed according to the alphabetic character input key (the function key corresponding to the alphabetic character input of a control unit 42, a numerical keypad, etc. should put together) which the user operated.
[0017] At step S3, it judges whether it is a GPS input, if it is a GPS input, it will move to step S6, and if it is not a GPS input, it will move to step S4. That is, it judges whether a user inputs positional information by the manual using a control unit 42, or the direct input of the positional information received by GPS receiver 11 is carried out, and judges based on the condition of the GPS input key (function key corresponding to the GPS input of a control unit 42) beforehand chosen by the user.
[0018] In step S4, it stands by until it will be inputted if it judged whether the input of the positional information by the manual would be completed, and the input of the positional information by the manual is completed, it moves to step S5 and the input is not completed. The input of the positional information by the manual is performed using a numerical keypad (numerical keypad of a control unit 42) in the LAT corresponding to the location name investigated with the atlas etc., and LONG. In addition, if the unit to input is decided by location precision to need, for example, is inputted to a unit by the LAT (or LONG) for 1 minute and it will be inputted to about 1.8km and a 1-second unit, it will serve as location precision of about 30m. In addition, in inputting the LAT and LONG not in a part and a second but in decimal point, it is set to about 1.1km at 0.01 degrees, and sets it the location precision of about 110m at 0.001 degrees.
[0019] At step S5, the inputted location name and corresponding positional information are memorized in memory 21, and processing is finished. Thus, if positional information (a location name and corresponding positional information) is inputted about a house and the storage to memory 21 is completed for example, the positional information corresponding to all the location names that repeat and ask for the same processing will be inputted and memorized from step S1. The storage condition to memory 21 is shown in drawing 2 (c). In addition, in a manual input, the positional information which once inputted and was memorized in memory 21 is read, and it has the advantage which can correct a "location name" and "positional information" easily.
[0020] At step S6, the positional information received by GPS receiver 11 is inputted, and it moves to step S7. That is, the positional information of lat/long is computed from the electric wave received by GPS receiver 11. In addition, since only the positional information of a its present location can input the processing which carries out the direct input of the positional information detected by GPS receiver 11, when inputting the positional information of a house, for example, a location name is inputted as a "house" and the positional information received by GPS receiver 11 at the house is inputted.
[0021] At step S7, the inputted location name and corresponding positional information are memorized in memory 21, and processing is finished. Thus, if positional information is inputted about a house and the storage to memory 21 is completed, all the location names that repeat and ask for the same processing, and corresponding positional information will be inputted and memorized from step S1. For example, it moves to the point of a location name to input with a cell phone unit etc., a location name is inputted as "office", and the positional information received by GPS receiver 11 in office is inputted. The storage condition to memory 21 is shown in drawing 2 (c).
[0022] In addition, by operating call keys (function key corresponding to a call of a control unit 42 etc.), a location name and positional information correspond and the positional information memorized in memory 21 is displayed on a display 41. For example, if 1 of a call key and a numerical keypad is operated and the positional information of a house will operate 2 of a call key and a numerical keypad, the positional information of office will be displayed on a display 41. Or whenever it operates a call key, a following location name and positional information are displayed on a display 41 one by one.
[0023] As mentioned above, with the gestalt of this operation, since a location name and

positional information correspond and the memory in telephone equipment memorizes, a user does not need to memorize positional information. Moreover, when telling the location of a house etc. to the other party by telephone (voice), it can transmit to accuracy by explaining, for example by oral [, such as "north latitude 35 degree 25 minute and east longitude 135 degree 10 etc. minutes etc.",], reading the positional information corresponding to the location name which should be guided from memory, making it display on a display 41, and looking at this positional information. The other party checks a location on the display screen of navigation equipment, when the location corresponding to the lat/long which looked at the atlas and was specified is checked or it has navigation equipment.

[0024] Thus, since the lat/long information which is transmissive positive text is displayed on the display 41 which has a limit in a tooth space from the first, a location can be transmitted certainly, using a tooth space effectively.

[0025] Drawing 4 is the mimetic diagram showing the send state of the telephone equipment concerning the gestalt of operation of the 2nd of this invention. Drawing 5 is the flow chart of the positional information transmitting processing which the microcomputer 2 of the telephone equipment concerning the gestalt of operation of the 2nd of this invention performs. Hereafter, it explains according to drawing. In addition, the gestalt of this operation transmits the positional information built in telephone equipment (storage) to a phase hand. Moreover, connection of a phase hand and the telephone line is made and this processing is started from the time of positional information transmission being directed.

[0026] At step S11, it judges whether a transmitting switch is ON, if a transmitting switch is ON, it will move to step S12, and if a transmitting switch is not ON, processing will be finished. That is, it judges whether transmitting actuation of positional information was made by the user in the state of send keys (function key corresponding to transmission of a control unit 42 etc.).

[0027] At step S12, it judges whether it is during the message with current voice, if it is during the message with voice, it will move to step S16, and if it is not during the message with voice, it will move to step S13. That is, when a transmitting switch is operated, it judges whether the message with a phase hand and voice is performed.

[0028] At step S13, positional information is displayed and it moves to step S14. That is, the positional information which corresponds with a location name about two or more locations, for example, a house, office, a its present location, etc. as the gestalt of the 1st operation explained to memory 21 is memorized, and a location name and corresponding positional information are read from memory 21 one by one, and it displays on the display screen of a display 41 so that the location which a user should transmit can be chosen.

[0029] At step S14, if it judges whether transmit information was chosen and transmit information is chosen, it will move to step S15 and transmit information will not be chosen, it stands by. That is, it judges whether the displayed location name and the location name which should be transmitted from corresponding positional information were chosen. It judges according to the condition of the send key (control unit 42) operated when a desired location name and corresponding positional information were displayed on a display 41.

[0030] At step S15, the selected positional information is transmitted to a phase hand, and processing is finished. For example, on radio, if the positional information read from memory 21 about the house is coded with an encoder 34 and becomes cell phone unit 1 via a transmitter 33, if it becomes deferment mold telephone equipment 1, it will be transmitted to the other party through the exchange 51 of the telephone company, and a radio relay station 52 with a cable. If the other party is the land mobile radiotelephone equipped with navigation equipment, lat/long will be displayed on the display screen of the display 61. Thus, positional information of a predetermined location can be transmitted correctly (transmission).

[0031] At step S16, positional information is displayed and processing is finished. That is, since it is during the message with voice, in order to transmit positional information with voice, the positional information memorized by memory 21 is displayed on a display 41.

[0032] With the gestalt of this operation, the location of its current position, a house, etc. can be correctly transmitted as mentioned above by choosing the positional information of a desired location from the location name memorized by memory and the corresponding positional

information, and transmitting to the other party.
[0033] Drawing 6 is the mimetic diagram showing the send state of the telephone equipment concerning the gestalt of operation of the 3rd of this invention, and the mimetic diagram in which (a) shows a retransmission-of-message condition, and (b) are [a retransmission-of-message decision migration length indicator chart and (d of a selective marker indicator chart and (c))] the count indicator charts of retransmission of message. Drawing 7 is the flow chart of the positional information retransmission-of-message processing which the microcomputer 2 of the telephone equipment concerning the gestalt of operation of the 3rd of this invention performs. Hereafter, it explains according to drawing. In addition, the gestalt of this operation detects its location on real time by the GPS receiver, repeats the positional information on a phase hand, and transmits it. [who moves with the land mobile radiotelephone carried in the mobile, or the cell phone unit carried by people] Moreover, connection of a phase hand and the telephone line is made and this processing is started from the time of retransmission of message of positional information being directed.
[0034] At step S21, a GPS electric wave judges whether it is ability ready for receiving, and if a GPS electric wave is ability ready for receiving, it moves to step S22 and a GPS electric wave cannot be received, it moves to step S29. That is, a GPS electric wave can be received and it judges whether in a microcomputer 2, a location is detectable from the receive state of GPS receiver 11.
[0035] In step S22, a current location is computed at the LAT and LONG in a microcomputer 2 based on the electric wave received by GPS receiver 11.
[0036] At step S23, if it moves beyond the distance that judged whether it moved more than the set-up threshold as compared with the LAT before saving, and LONG information, and has been set up and will not move beyond the distance moved and set as step S24, processing is finished. This processing is judged based on the retransmission-of-message decision-criterion migration length (distance which serves as criteria which judge whether its present location positional information will be again transmitted if which moves from the location when transmitting its present location positional information last time) which omits the futility which repeats retransmission of message frequently and which carries out for accumulating and is beforehand set up by the user like drawing 6 (c). For example, whenever it carries out L= 300m (slant range) migration, the positional information (its present location) detected by GPS receiver 11 is broadcast again. This retransmission-of-message decision-criterion migration length is decided with distance, passing speed, etc. to a its present location and the destination, and when the distance to a its present location and the destination is far, or when passing speed is quick, retransmission-of-message decision-criterion migration length is set up for a long time so that the count of transmission may be reduced.
[0037] At step S24, it judges whether a retransmission-of-message function (mode) is ON, if a retransmission-of-message function is ON, it will move to step S25, and if the retransmission-of-message function is off, processing will be finished. That is, it judges by whether the retransmission-of-message function is beforehand turned on by the user like drawing 6 (b). In addition, the condition that a retransmission-of-message function is off transmits positional information only once, and is equivalent to the gestalt of the 2nd operation.
[0038] At step S25, it judges whether it is less than a retransmission-of-message limit, if it is less than a retransmission-of-message limit, it will move to step S26, and if it is not less than a retransmission-of-message limit, it will move to step S27. That is, it judges by whether it is less than the count of retransmission of message (in this case, 3 times) beforehand set up by the user like drawing 6 (d). This processing is performed in order to prevent repeating transmission of useless positional information repeatedly by the case where it is far from the destination etc.
[0039] At step S26, current positional information is transmitted to the phase hand who transmitted previously, and processing is finished. For example, if the RIDAIARU function of telephone equipment 1 is used and it becomes predetermined conditions (for example, L= 300m migration), the currency information which carried out dial connection and which was detected by GPS receiver 11 will be transmitted. Positional information is coded with an encoder 34, and from the transmitting section 33, if it is a cell phone unit, it will be transmitted to the other party

through the exchange 51 of the telephone company, and a radio relay station 52 via a radio relay station 53. If the other party is the land mobile radiotelephone equipped with navigation equipment, the positional information of lat/long will be displayed on the display screen of a display 61. thus, one's current position -- real time -- and it can transmit correctly. [who changes every moment]

[0040] At step S27, if it judges whether there is any transmitting function of an evocation message and there is a transmitting function of an evocation message, it will move to step S28, and if there is no transmitting function of an evocation message, processing will be finished. It memorizes by the easy message [an evocation message] which should be connected to a phase hand, for example, "please telephone" etc., in memory 21 beforehand. It judges by whether it is set up so that this evocation message may be transmitted.

[0041] At step S28, an evocation message is transmitted and processing is finished. That is, since predetermined number (for example, 3 times) positional information was repeated and it transmitted, the evocation message memorized by memory 21 is read to a phase hand, and it transmits to him. In addition, transmission of positional information is suspended after three predetermined numbers.

[0042] At step S29, it is displayed as a receive not ready and processing is finished. That is, since the current position is undetectable with GPS receiver 11, in order to show that it is in the condition which cannot perform transmission of positional information, "location detection being impossible", a "GPS receive not ready", etc. are displayed on the display screen of a display 41.

[0043] one's current position -- real time -- and it can transmit correctly. [who changes every moment with the gestalt of this operation as mentioned above since its positional information is repeated to the other party and it transmits] Moreover, by setting up retransmission-of-message decision-criterion migration length and the count of retransmission of message, useless transmission can be prevented and it becomes prevention of the troublesomeness of a receiving side, and saving of transmitting costs.

[0044] Drawing 8 is the mimetic diagram showing the receive state of the telephone equipment concerning the gestalt of operation of the 4th of this invention. Drawing 9 is the flow chart of the positional information reception which the microcomputer 2 of the telephone equipment concerning the gestalt of operation of the 4th of this invention performs. Drawing 10 is the explanatory view of the direction and distance calculation approach of the phase hand of the telephone equipment concerning the gestalt of operation of the 4th of this invention, and an explanatory view for (a) to explain distance and the direction calculation approach, drawing in which (b) shows the 1st example of a receipt information display, and (c) are drawings showing the 2nd example of a receipt information display. Hereafter, it explains according to drawing. In addition, the gestalt of this operation computes the direction of a partner, and distance with a partner by receiving the positional information transmitted from the other party, and displays them on the display screen. Connection of a phase hand and the telephone line is made and this processing is started from the time of reception of positional information being directed.

[0045] At step S31, a phase hand's positional information is received and it moves to step S32. For example, when a phase hand is a transit car, the navigation equipment carried in the car detects the location (A1 point) of a car by lat/long. A detection result is displayed on the display 61 of navigation equipment. And a cell phone unit (or deferment mold telephone equipment) 1 receives the positional information through a radio relay station 52, the exchange 51, and a radio relay station 53 (or wire circuit) with a land mobile radiotelephone etc.

[0046] At step S32, as compared with built-in positional information, a phase hand's direction and distance over their location are calculated, and it moves to step S33. Its location (B point) is memorized by the memory 21 of telephone equipment 1, when its location is a house, reads the positional information memorized corresponding to the location name "a house" explained in the gestalt of the 1st operation from memory 21, and inputs it into a microcomputer 2. In addition, not only the built-in location memorized by memory 21 but when the current position is sufficient and currency information is not memorized by memory 21, its location detects the current position by GPS receiver 11, and should just input and use the positional information. In addition, its location may be a destination like the distant location, for example, a queuing

location. [not only one's location but] A phase hand's direction and relative distance to their location (B point) are calculated from both physical relationship as shown in drawing 10 (a). When their location and a phase hand's location (A1 point) are shown in lat/long, after changing into the distance converted into the meter (m) on the basis of its location, a direction and a relative distance are calculated. For example, a direction theta 1 and distance L1 are computed from (1) type and (2) types.

[0047]

tantheta1=(y0-y1)/(x0-x1) ..... (1) type L1=(x0-x1) (2+(y0-y1) 2) 1/2 .. At (2) type step S33, text and graphic form information are created and it moves to step S34. That is, it writes in image memory (V-RAM) by the computed direction theta 1, the figure which indicates that distance corresponds a relative distance L1 to drawing 10 (b), and the arrow head which shows a direction. In addition, a notation, an arrow head, etc. which show bearing (for example, north) are written in image memory (V=RAM) together.

[0048] At step S34, text and graphic form information are displayed on a display 24, and processing is finished. That is, the alphabetic character and graphic form written in V-RAM are outputted to a display 41 (refer to drawing 10 (b)).

[0049] In addition, by adjusting the installation direction of deferment mold telephone equipment, or the maintenance direction of a cell phone unit (it rotating in a horizontal plane), the direction of a display 41 can be responded with bearing on geography, and grasp of the direction of a phase hand becomes easy so that bearing (for example, north) of the notation and arrow head which show bearing (for example, north) displayed on the display screen of an indicator chart 41, and the bearing sensor 12 may be in agreement.

[0050] Moreover, based on the positional information after the migration transmitted for every predetermined time, i.e., the position coordinate of B-2 point, (x2, y2), when a phase hand moves, processing of step S31 to the step S34 is repeated. Thus, since the direction of the phase hand after migration (theta 2) and distance (L2) are computed and it is displayed on the display screen of a display 41, whether it is keeping away whether the phase hand is approaching can continue and grasp it as the direction of a phase hand (refer to drawing 10 (c)).

[0051] Moreover, although the computed direction of a phase hand and the location were expressed to the display 41 as the gestalt of this operation, it synthesizes voice not only from this but from a calculation result, for example, may be made to carry out a voice output to "southeast" and "330m" from a loudspeaker (earphone) 27.

[0052] the current position of the partner who changes every moment by continuing the currency information of the partner transmitted by the phase hand, and receiving with the gestalt of this operation as mentioned above -- real time -- and it can grasp correctly.

[0053] In addition, although considered as the navigation in which the other party was prepared by the car in the gestalt of the 2nd explained above thru/or the 4th operation, you may be a cellular phone, and the GPS receiver and the pocket mold computer with communication facility which were shown not only by this but by drawing 2 (a).

[0054]

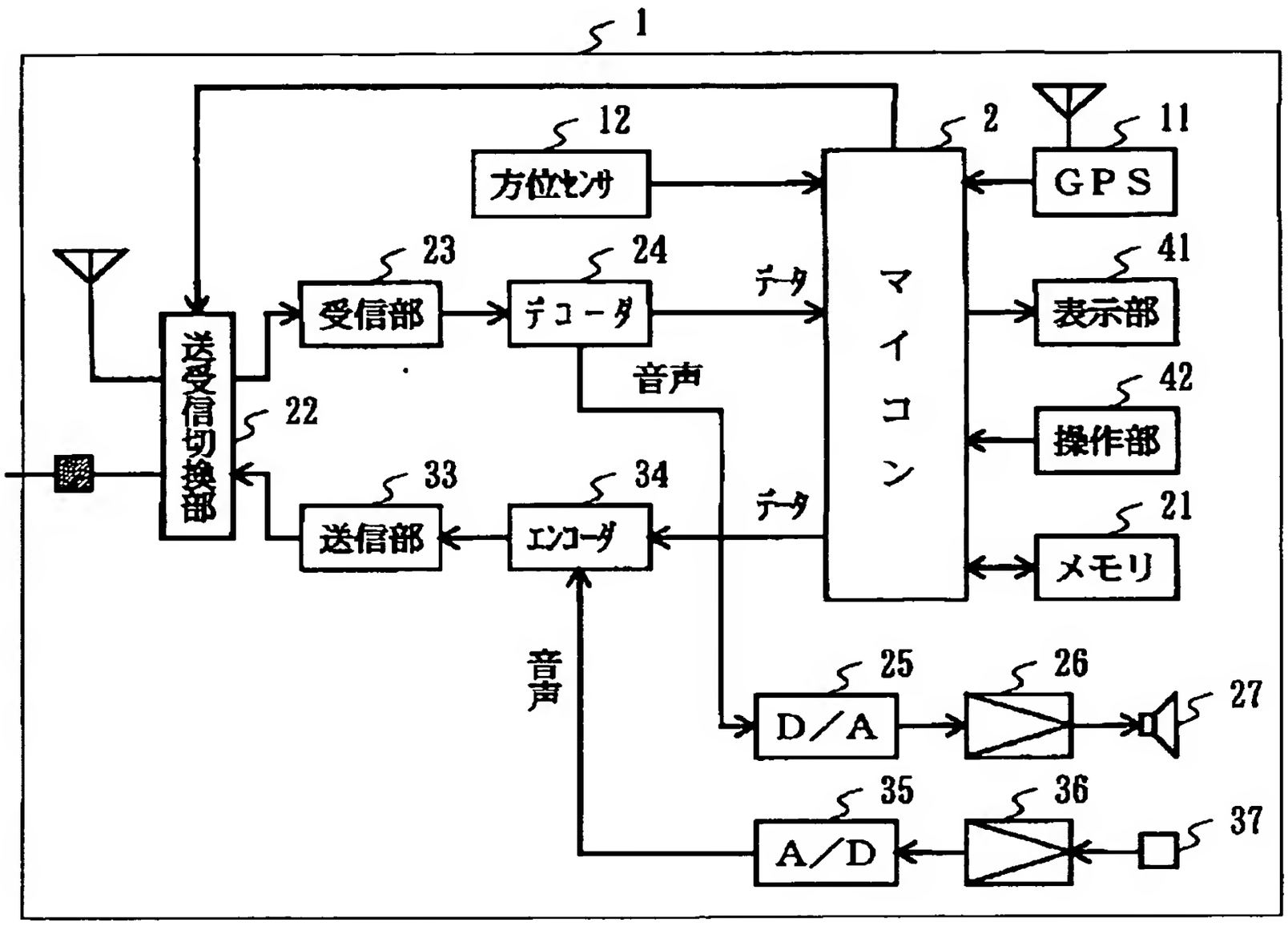
[Effect of the Invention] As explained above, in this invention, the telephone equipment which can transmit positional information to a phase hand correctly and easily, and can acquire the positional information from a phase hand correctly and easily can be offered.

[Translation done.]

DRAWINGS

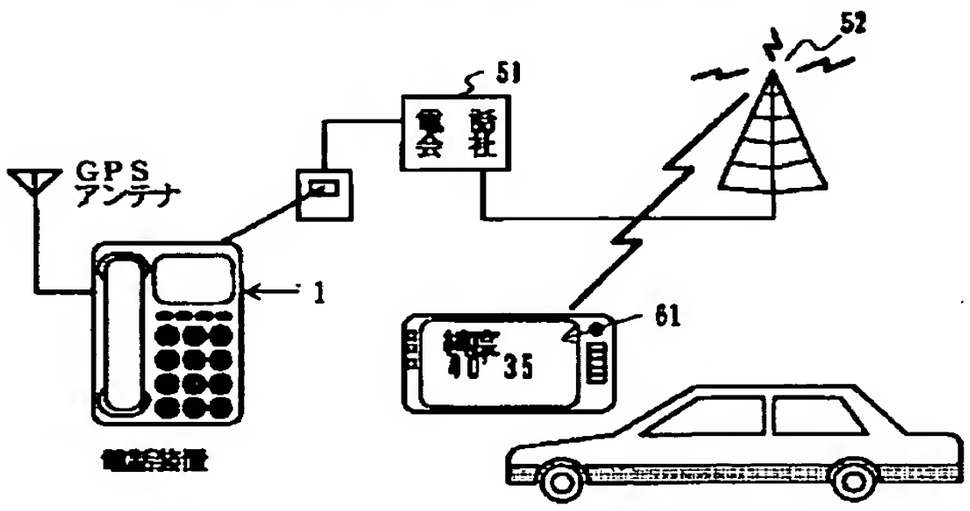
[Drawing 1]

本発明の第１の実施の形態に係る電話装置の構成を示すブロック図



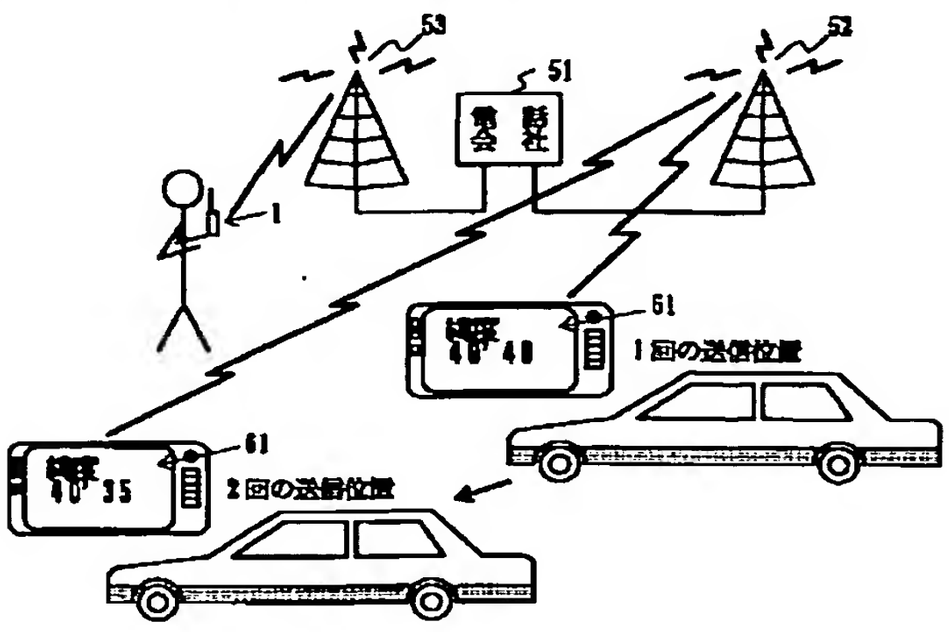
[Drawing 4]

本発明の第２の実施の形態に係る電話装置の送信状態を示す模式図



[Drawing 8]

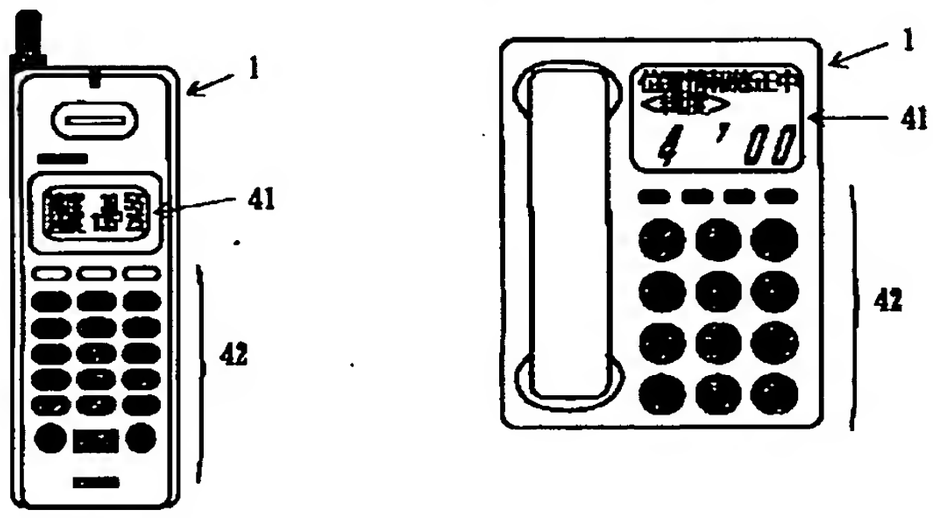
本発明の第4の実施の形態に係る電話装置の受信状態を示す概式図



[Drawing 2]

本発明の第1の実施の形態に係る電話装置の外観図と位置情報表示例を示す図

(a) 携帯電話装置の外観図 (b) 据置型電話装置の外観図

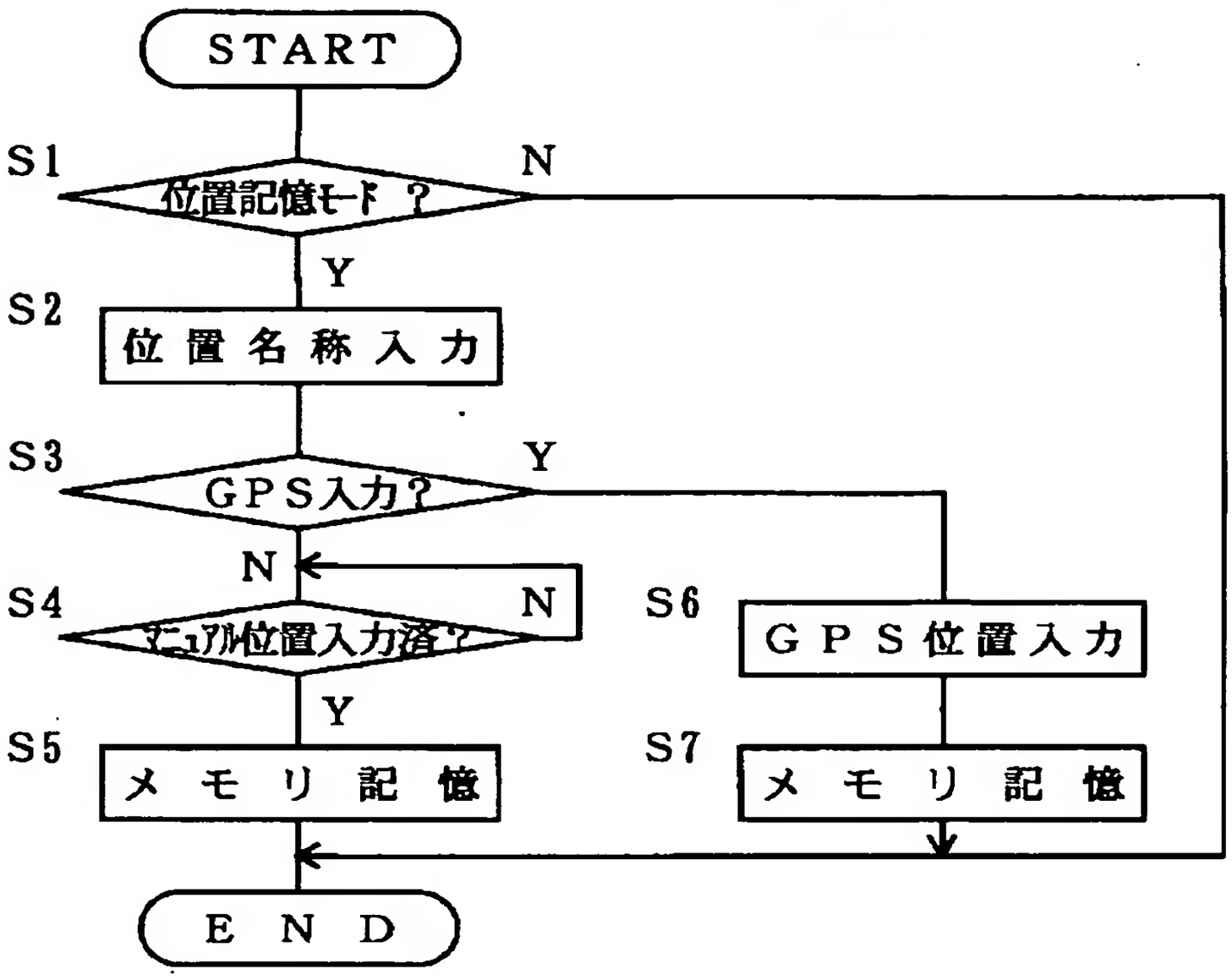


(c) 位置情報記憶例を示す図

No.	位置名称	位置(緯度、経度)	
1	自宅	39.55	135.25
2	勤務先	39.50	135.20
3	現在地	39.50	135.10
4			
5			

[Drawing 3]

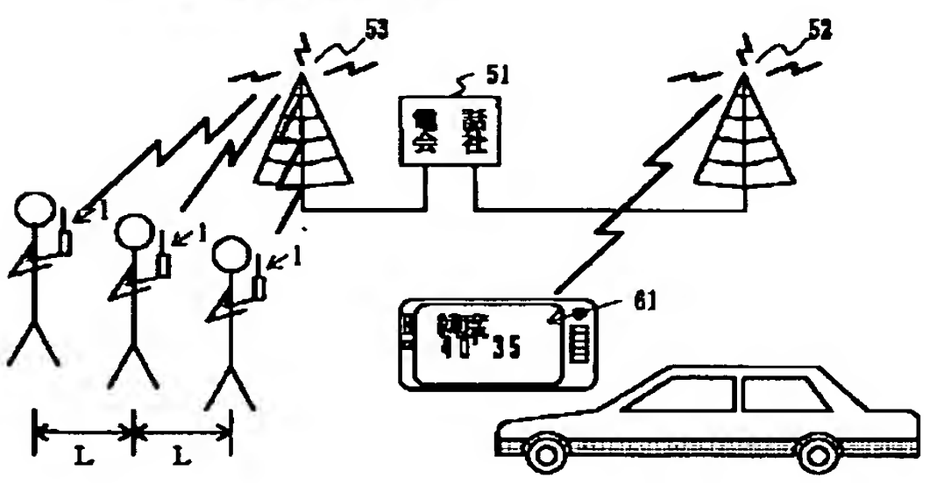
本発明の第１の実施の形態に係る電話装置のマイコン２の行う位置情報記憶処理のフローチャート



[Drawing 6]

本発明の第３の実施の形態に係る電話装置の送信状態を示す模式図

(a) 再送信状態を示す模式図



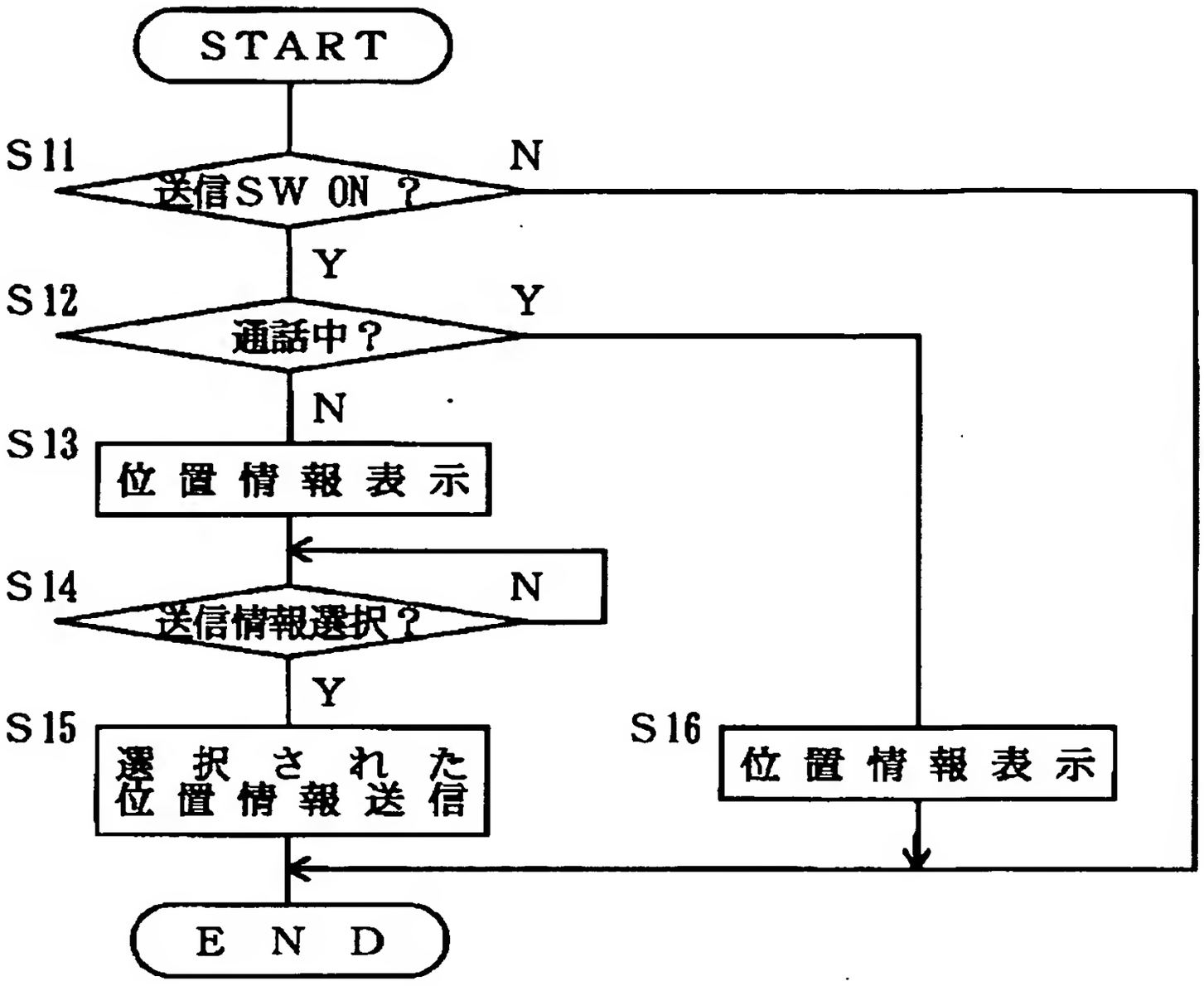
(b) 選択マーカ表示図

(c) 再送信判断基準移動距離表示図

(d) 再送信回数表示図

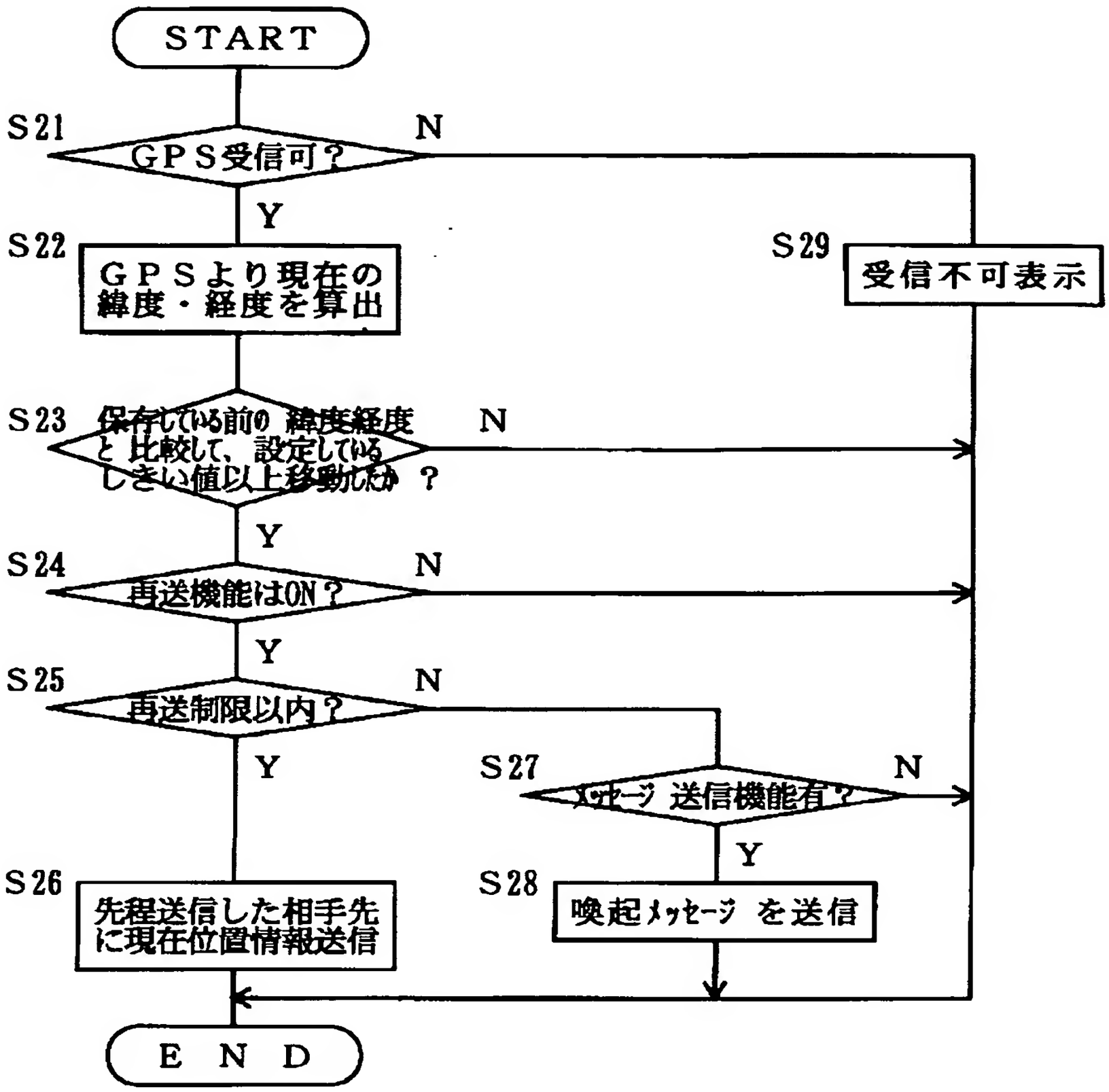
[Drawing 5]

本発明の第２の実施の形態に係る電話装置のマイコン２の行う
位置情報送信処理のフローチャート



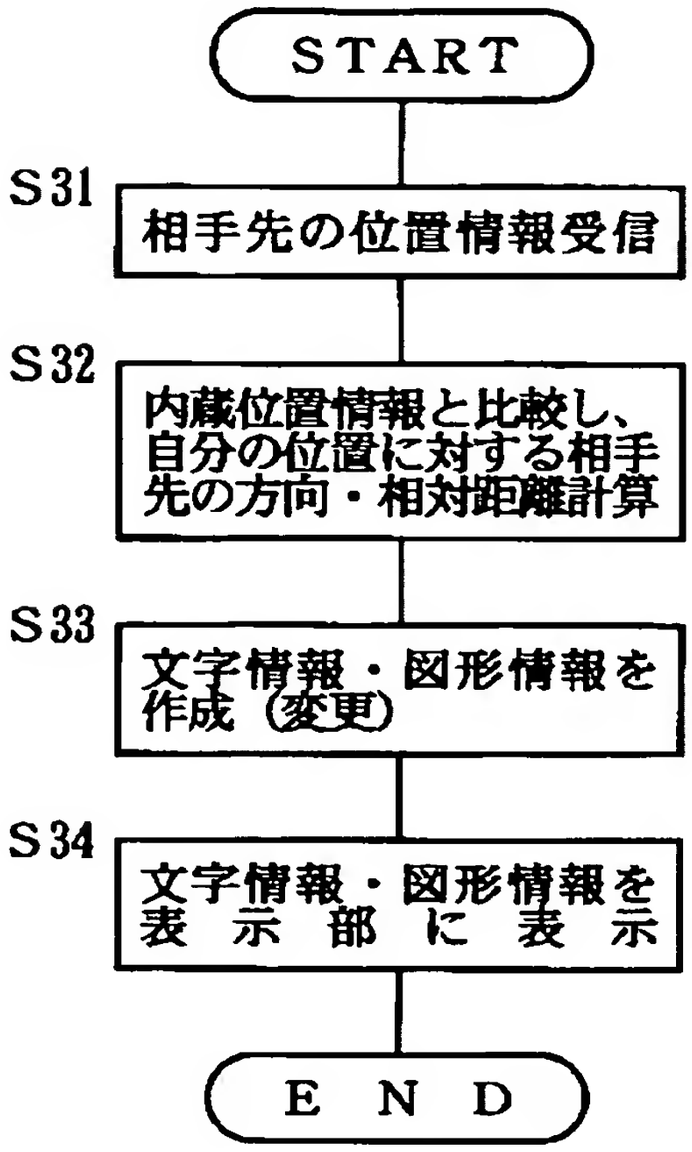
[Drawing 7]

本発明の第３の実施の形態に係る電話装置のマイコン２の行う位置情報再送信処理のフローチャート



[Drawing 9]

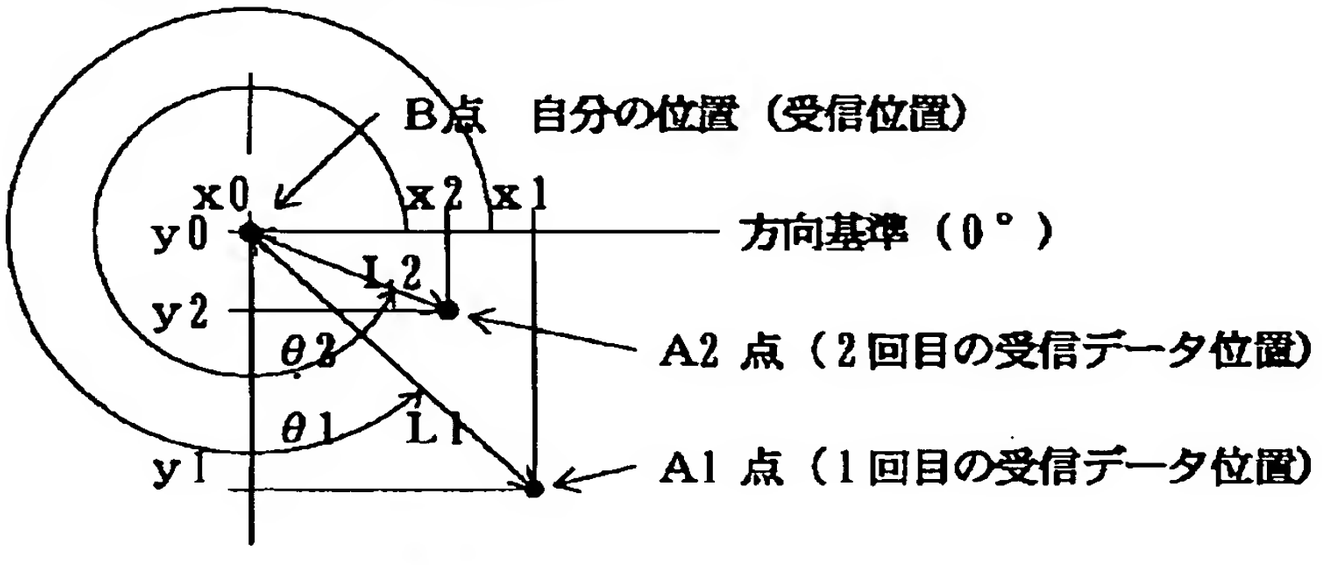
本発明の第４の実施の形態に係る電話装置のマイコン２の行う位置情報受信処理のフローチャート



[Drawing 10]

本発明の第４の実施の形態に係る電話装置の相手先の方向・距離算出方法の説明図

（a） 方向距離算出方法の説明図



第１回目の相手先の方向・距離

方向 $\tan\theta 1 = (y1 - y0) / (x1 - x0)$

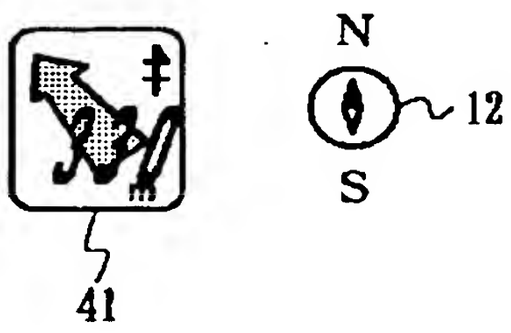
距離 $L1 = ((x1 - x0)^2 + (y1 - y0)^2)^{1/2}$

第２回目の相手先の方向・距離

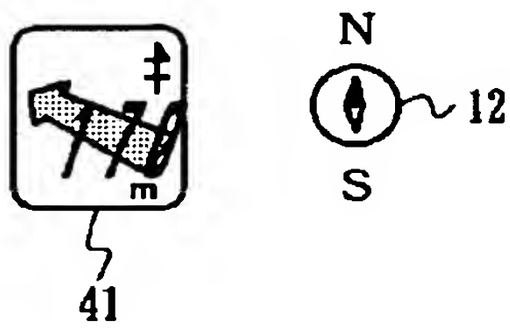
方向 $\tan\theta 2 = (y2 - y0) / (x2 - x0)$

距離 $L2 = ((x2 - x0)^2 + (y2 - y0)^2)^{1/2}$

（b）第１回目の受信データの表示例を示す図



（c）第２回目の受信データの表示例を示す図



[Translation done.]